We claim:

1.   A method for controlling a refrigerator having a control actuator and at least two compartments (FR, FZ) cooled to respective temperatures and comprising sensor devices (T_R, T_Z) for generating control signals responsive to cooling demands of the respective compartments, the method comprising the steps of: generating a signal indicative of the total cooling demand on the basis of the sum of each compartment cooling demand, and using the signal to drive the control actuator according to the total cooling demand.

2.   The method according to claim 1, wherein the control actuator is a variable speed compressor.

3.   The method according to claim 1, wherein the control actuator is a refrigerant flow rate control valve.

4.   The method according to claim 1, in which the control signals are temperature signals indicative of the temperature error between the actual temperature and the target temperature in each compartment (FR, FZ), wherein such temperature signals depend on present, past and estimated future temperature errors.

5.   The method according to claim 1, in which a refrigerant or a cooling-air flow is directed to selected refrigeration compartments (FR, FZ), wherein an auxiliary signal indicative of the direction of refrigerant or cooling-air flow is generated on the basis of the difference between signals responsive to cooling demands of compartments.

6.   A refrigerator having at least two compartments (FR, FZ) cooled to respective

temperatures, the refrigerator control system comprising sensor devices (T_R, T_Z) for

generating refrigerator control signals responsive to cooling demands of the respective

compartments and a control actuator coupled to said control system, wherein the refrigerator

5   control system is adapted to issue a signal indicative of the total cooling demand on the basis

of the sum of each compartment cooling demand, such signal being used to drive the control

actuator according to such total demand.

7.   The refrigerator according to claim 6, wherein the control actuator is a variable speed

compressor, a linear compressor or any compressor in which cooling capacity thereof can be

controlled.

8.   The refrigerator according to claim 6, wherein the control actuator is a refrigerant flow

rate control valve.

9.   The refrigerator according to claim 6, in which the refrigerator control system

comprises means (V) for directing a refrigerant or a cooling-air flow to selected refrigerator

compartments (FR, FZ), wherein the refrigerator control system is adapted to issue a signal

indicative of the direction of refrigerant or cooling-air flow in a selected compartment on the

5   basis of the difference between compartment cooling demands.

10.   The refrigerator according to claim 6, wherein the refrigerator control signals

responsive to cooling demands of the respective compartments contain temperature error

information that depend on the present, past and estimated future errors.

11.   The refrigerator having at least two compartments (FR, FZ) cooled to respective temperatures, the refrigerator control system comprising sensor devices (E_R, E_Z) for generating refrigerator control signals responsive to cooling demands of the respective compartments (FR, FZ) and a control actuator coupled to said control system, wherein the control actuator is a valve (V') for controlling the flow rate of the refrigerant, the above signals being indicative of temperature difference across each evaporator.

12.   The refrigerator according to claim 11, wherein said valve (V') is adapted to deliver the refrigerant in one of the evaporators corresponding to the compartments (FR, FZ), the flow rate being adjusted for the evaporator supplied with refrigerant.